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26 November 2024

Dr Regina Flugge
Manager Sustainability
Leichhardt Salt Pty Ltd
Suite A7, 435 Roberts Road
Subiaco WA 6008

Dear Regina,

Please find attached the technical memorandum on the implementation the 2024 Night Parrot Sampling Program for the Eramurra Solar Salt Project. Please note that this technical memorandum does not include the results from the analysis of the acoustic recorders as this is being provided by Dr Nick Leseberg directly to Leichhardt Salt Pty Ltd.

Yours sincerely

DR JESSICA JOHNSTON

Principal Zoologist

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1 Introduction

Biologic Environmental Survey (Biologic) was commissioned by Leichhardt Salt Pty Ltd (Leichhardt) to implement the Night Parrot Sampling Program for the Eramurra Solar Salt Project (ESSP) in 2024 (Figure 1.1). The night parrot (*Pezoporus occidentalis*) is currently listed as Endangered under the federal *Environment Protection and Biodiversity Conservation Act 1999* and Critically Endangered under the state *Biodiversity Conservation Act 2016*.

The scope of works was to implement the Night Parrot Sampling Program for the ESSP, specifically to:

- Review the Night Parrot Sampling Program 2024 developed by Dr Nick Leseberg.
- Provide and install four Song Meter (SM4s) in accordance with the two-week sampling program design.
- Provide a technical note on the implementation of the program, including any deviations from the program design.

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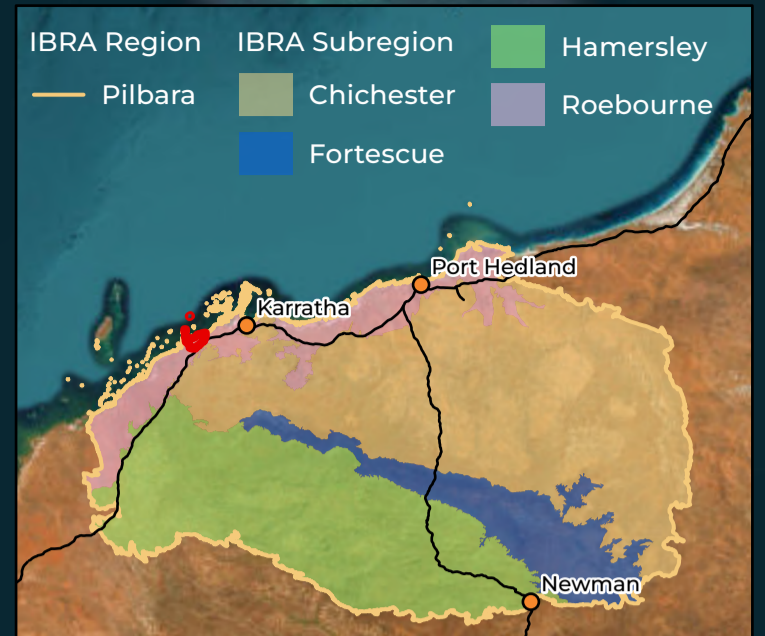
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LEGEND

- Study Area
- Local Road
- State Road



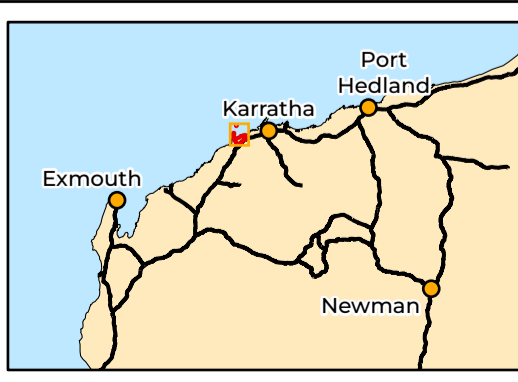
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Coordinate System: GDA 1994 MGA Zone 50
 Transverse Mercator Created: 31/10/2024



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Project Night Parrot
Sampling Program 2024

Figure 1.1: Study Area and regional context

2 Implementation of the Program

2.1 Review of the Night Parrot Sampling Program

The Night Parrot Sampling Program was designed by Dr Nick Leseberg in accordance with DBCA (2024) guidelines for determining the likely presence of night parrots. The design was also informed by research into night parrot detection from western Queensland (Leseberg *et al.*, 2022) and supported by preliminary research from Western Australia (Rangers *et al.*, 2024). Two key assumptions provided the foundation of the program:

- Night parrots require long unburnt *Triodia* for roosting. At locations where the birds are known to occur, night parrots establish long-term stable roost sites in long unburnt *Triodia* and may occupy these sites for extended periods of up to several years (Jackett *et al.*, 2017; Murphy *et al.*, 2017).
- Due to night parrots being predictably vocal, if occupying a long-term stable roost site, they can be reliably detected at any time of year using autonomous recording units (ARUs) (Leseberg *et al.*, 2019; Leseberg *et al.*, 2022).

A desktop assessment concluded there was extensive potential foraging habitat within the project site, but only very limited roosting habitat in the form of long unburnt *Triodia* with the complex structure required to support night parrots. To confirm the presence/ absence of night parrots in this small area of potential roosting habitat, a program of acoustic surveys was proposed.

Night parrot calls can be detected by a Song Meter 4 ARU to a distance of approximately 200 metres (m). As night parrots will move around a long-term stable roost site while calling, spacing of the ARUs approximately 500–600 m apart at the Eramurra Solar Salt project site will ensure any birds present are detected if roosting within the potentially suitable habitat available at the site.

In accordance with DBCA (2024) survey guidelines a minimum of six consecutive nights in good recording conditions (i.e. little or no wind, rain or other acoustic disturbances) are required to determine presence. The Night Parrot Sampling Program was designed to record for 14 consecutive nights to allow for sub optimal nights and ensure that six good recording nights were sampled.

2.2 Deployment of Acoustic Recording Units

The Night Parrot Sampling Program 2024 was undertaken in accordance with the following government and client guidelines:

- DBCA (2024) Guidelines for determining the likely presence and habitat usage of night parrot (*Pezoporus occidentalis*) in Western Australia

- EPA (2020) Technical guidance – terrestrial vertebrate fauna surveys for environmental impact assessment
- Leichhardt’s Night Parrot Sampling Program 2024 developed by Dr Nick Leseberg.

Four SM ARUs were deployed by Sammy Alatas (Biologic) and Billy McKee (Leichhardt) on 19 October 2024. The ARUs were collected by Billy McKee on 6 November 2024 and the data was sent to Dr Nick Leseberg for analysis.

The ARU deployment was conducted under the following licences and permits; Department of Primary Industries and Regional Development (DPIRD) *Animal Welfare Act 2002* Licence to use animals for scientific purposes (Licence No. U244/2022-2024); DBCA Regulation 27 “Fauna Taking (Biological Assessment) Licence”, issued to Chris Knuckey (Licence No. BA27001166); DBCA “Authorisation to Take or Disturbed Threatened Species” issued to Chris Knuckey (Authorisation No. TFA 22425-0115); and Murdoch University Animal Ethics Committee permit RW3354/21.

The ARUs were located in the open where possible and clear of any vegetation that may interfere with recordings, particularly if conditions are windy. The ARUs were attached to a star picker or fence dropper 1–1.5 m off the ground (Plate 2.1). To maximise probability of night parrot detection, the ARUs were set to record from 25 minutes after sunset until 25 minutes before sunrise. This also increases the probability of detecting any individuals that may be passing through the area but not roosting at the site during the survey period. The survey effort for the Night Parrot Sampling Program is shown in Table 2.1 and Figure 2.1.

Plate 2.1: Acoustic recording unit deployed within Stony Plain habitat



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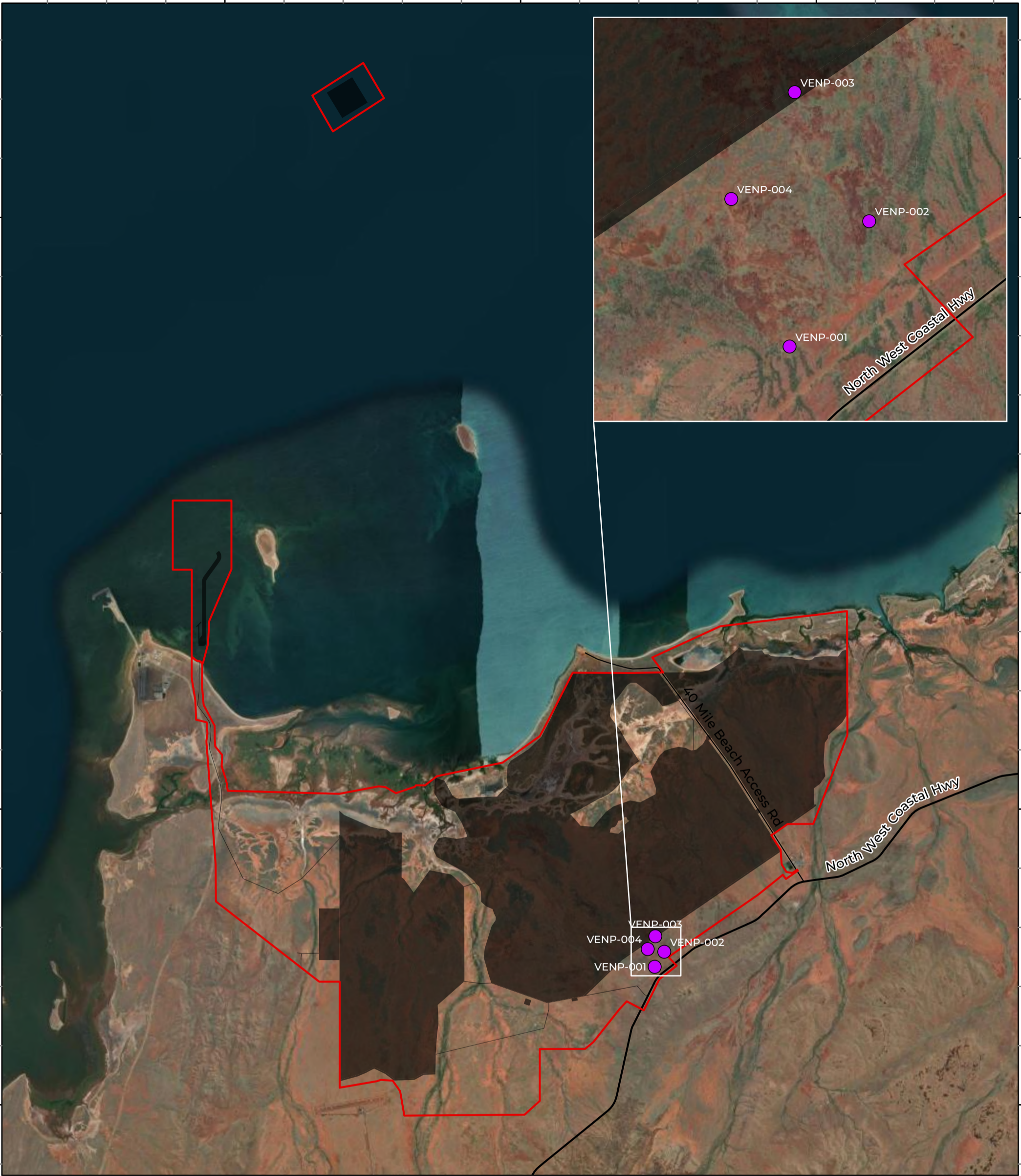
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LEGEND

- Study Area
- Indicative Disturbance Area
- Local Road
- State Road
- Acoustic Recorder
- Townsites_Pts_LGATE_007



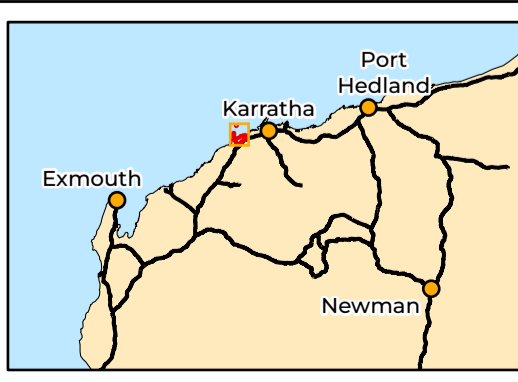
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Project Night Parrot
Sampling Program 2024

Figure 2.1: Location of acoustic recording units

Table 2.1: Acoustic sampling effort for night parrot

Site	ARU ID	Habitat	Deployment	Retrieval	Recording nights
VENP-001	7695	Stony Plain	19/10/2024	06/11/2024	18
VENP-002	0522	Stony Plain	19/10/2024	06/11/2024	18
VENP-003	5007	Stony Plain	19/10/2024	06/11/2024	9
VENP-004	2331	Stony Plain	19/10/2024	06/11/2024	10
Total ultrasonic recorders deployed					4
Total number of recording nights					55

The ARUs at sites VENP-001 and VENP-002 recorded for the entire sampling period; however, the ARUs at VENP-003 and VENP-004 ran out of battery prior to the end of the sampling period and recorded for only nine and ten nights, respectively.

No rainfall was recorded from the nearest Bureau of Meteorology weather station (Mardie station 005008) during the sampling period (BoM, 2024). Wind speeds at 0900 were less than 15 km/hr for most of the sampling period except on 22 October and 26 October 2024, suggesting suitable recording conditions, which helps to maximise detection distances (Table 2.2).

Table 2.2: Weather conditions (Mardie station 005008) during the sampling program

Date	Rain (mm)	Max wind gust speed (km/h) (time)	Wind speed at 0900 (km/h)	1500 (km/h)
19/10/2024	0	37 (1319)	11	20
20/10/2024	0	46 (1617)	11	31
21/10/2024	0	48 (1339)	19	35
22/10/2024	0	43 (1600)	24	30
23/10/2024	0	35 (1544)	15	26
24/10/2024	0	-	9	17
25/10/2024	0	33 (1410)	7	24
26/10/2024	0	46 (1619)	17	31
27/10/2024	0	43 (1357)	13	30
28/10/2024	0	37 (1358)	13	21
29/10/2024	0	43 (1336)	13	20
30/10/2024	0	35 (1315)	6	24
31/10/2024	0	46 (1551)	4	31
01/11/2024	0	46 (1625)	13	31

3 Conclusions

The Night Parrot Sampling Program 2024 adheres to the DBCA (2024) survey guidelines for detecting the presence of the night parrot. The ARUs were deployed in accordance with the program and there were no deviations from the design or limitations in the implementation of the program. A minimum of six recording nights were achieved (between nine and 18 nights per ARU) under reasonable recording conditions and data has been sent to Dr Nick Leseberg for analysis, who will provide feedback and results directly to Leichhardt.

4 References

- BoM, Bureau of Meteorology. (2024). Climate Data Online. Retrieved 2024 <http://www.bom.gov.au/climate/data/index.shtml>
- DBCA, Department of Biodiversity, Conservation and Attractions. (2024). *Guidelines for determining the likely presence and habitat usage of night parrot (Pezoporus occidentalis) in Western Australia*. Department of Biodiversity, Conservation and Attractions, Kensington, Western Australia.
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Appendix A: Important Note

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